

Weekly Report

2016.09.26-2016.10.02

1.This Week

Security Projects

- 1.Reconstruct our project code and construction.
- 2.Finish the add new root function of the project.
- 3.Revise the bugs discovered during developing.

Vis poster

- 1.Manage the structure hole paper into a poster form for the vis conference.

Video Record

- 1.Help do the sound recording of LU Junhua's Wangyi Youxi paper.

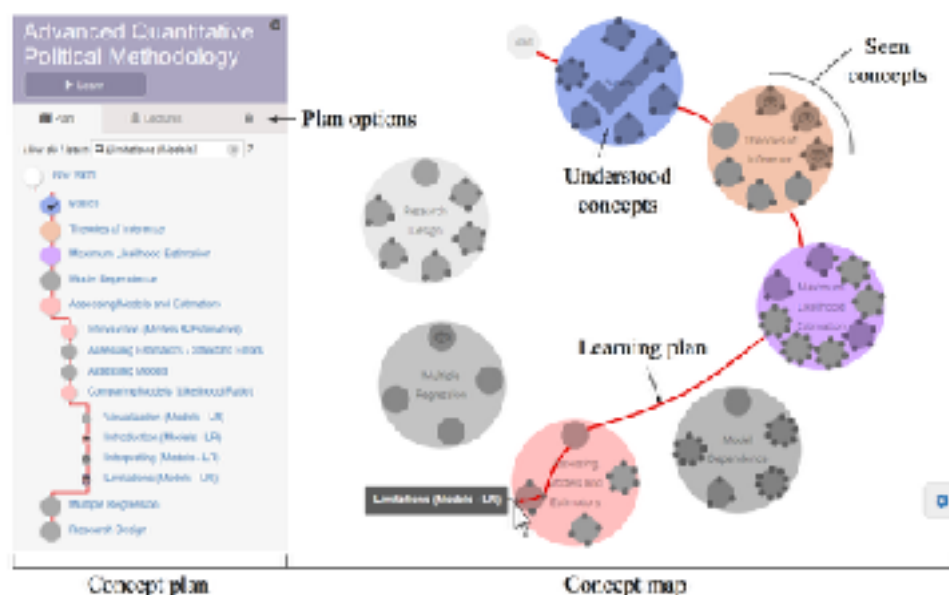
Learn about the Meteorological project

- 1.Learn about the Meteorological project form Wang Qi and prepare an English version of the project presentation.

Paper Reading

1. booc.io: An Education System with Hierarchical Concept Maps and Dynamic Non-linear Learning Plans

Infovis 2016



booc.io allows linear and non-linear presentation and navigation of educational concepts and material. It provides a concept plan(left) and a concept map(right) for each course adapted to booc.io. The concept map focuses on course concepts learning which uses a circular layout to arrange concepts and their sub-concepts in a clockwise order. The concept plan acts as a search panel, a control panel, and a hierarchical list representation of the course. The concept map and concept plan are synchronized to aid map understanding, with each user interaction causing action within both views simultaneously.

The topic of this paper is quite novel and the idea to lay concepts in a clockwise order and their sub-concepts within the circle also in a clockwise order shows both the linear and non-linear hierarchy. However, it requires a lot of manual work to adapt a certain course to this system.

2.cite2vec: Citation-Driven Document Exploration via Word Embeddings

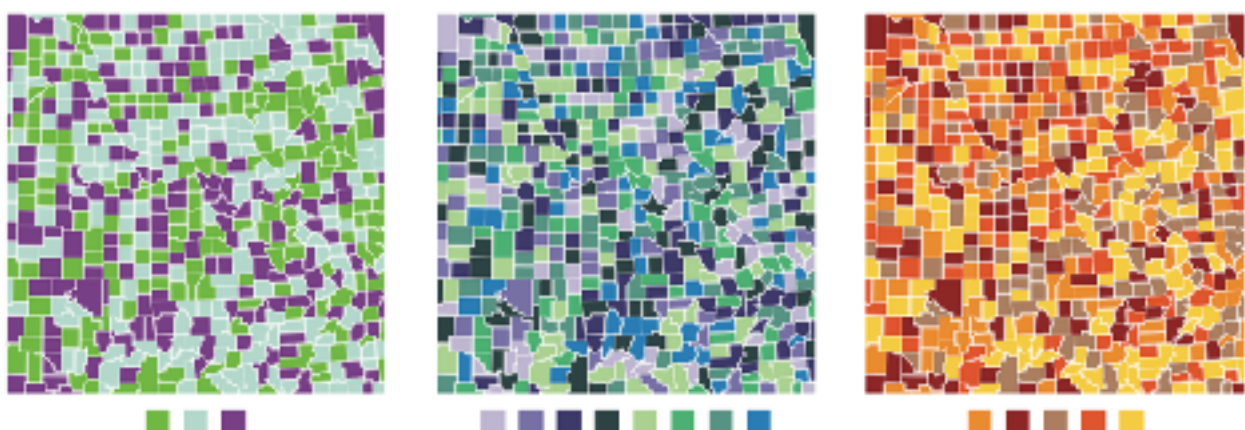
Infovis 2016



This paper presents a novel method for modeling and exploring documents via their citation contexts. It uses 'word objects' to define the usage of a document being cited. The word objects are mapped to a 2D space in the main view as well as the documents(circles in the view). Related and similar words and documents are closely located.

This paper does an interesting job that uses projection methods to map both concept and document in the same space but uses different presentations. But this also draws a fatal shortcoming of scalability. Furthermore, directly showing concepts as word in the view may confuse the mapping location and contribute to visual occlusion.

3.Colorgorical: Creating discriminable and preferable color palettes for information visualization

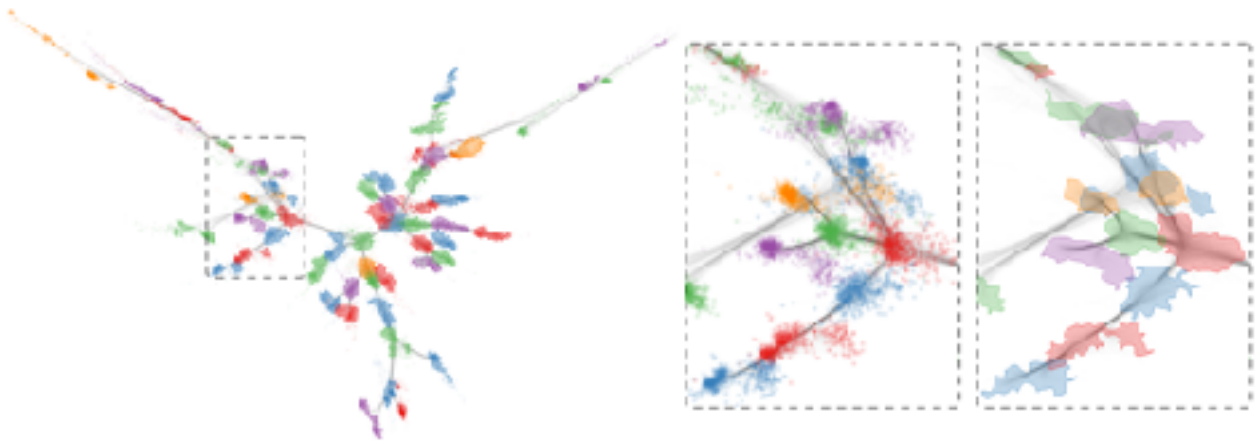


Infovis 2016

This paper presents Colorgorical, a model-driven approach to generating categorical color palettes for information visualizations by configuring palette discriminability and preference. Colorgorical uses an iterative, semi-random-sampling procedure to generate palettes of a specified size. It iteratively samples colors using three color discriminability scores (Perceptual Distance, Name Difference, Name Uniqueness) and a color preference score (Pair Preference). The main flashing point of this paper is that it provides its evaluation process in an extremely complete and quantitative way which makes this method really convincing. Infovis paper seems to explain less method and model (but also needs to explain this clearly) but lay their points on the evaluation part.

4.Probabilistic Graph Layout for Uncertain Network Visualization

Infovis 2016



This paper presents a novel approach for uncertain network visualization that maps probability distributions of edges to visually perceivable splats and shapes. It applies force-directed layout in a static way and generate the final layout based on a reference layout computed by the expected value of the probability density of edges. KDE is used to generate node positions and edge bundling is used to decrease visual opacity. DBSCAN is used to is used for clustering. Actually, I consider this paper quite normal. All the method used in this paper are already existing simple methods and the paper itself does not explain why this kind of method is chosen (why not other methods).

5.Evaluation of Graph Sampling: A Visualization Perspective

Infovis 2016

This paper provided the study of how graph sampling strategies can influence the perception of node-link visualizations. Their study identified three important visual factors that should be preserved, namely, high degree nodes, cluster quality, and coverage area. They conducted three controlled experiments (perception of high degree nodes, perception of cluster quality and

perception of coverage area) to evaluate the effects of these sampling strategies on the perception of these visual factors.

This is a pioneer work in evaluating graph sampling strategies and provides a detailed and fully concerned evaluation process from which we can draw lessons.